

# PATENT SPECIFICATION

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## COMPLETE SPECIFICATION

### Improvements in or relating to Swirl Tubes

We, **MANNESMANN AKTIENGESellschaft**, a German Company of Corneliusplatz 1, Düsseldorf, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention is for improvements in or relating to swirl tubes.

In heat exchangers and for other purposes, for example, for the conveyance of mixtures of oil and water use, swirl tubes are frequently employed, such tubes being ones in which the walls have helically extending constrictions. A swirl tube has the property of imparting a rotary motion to the medium flowing therein in addition to the axially directed motion, whereby an improvement in heat transfer is obtained, a factor which would be of prime importance, for example, in heat exchangers, and the only disadvantage which is inherent in swirl tubes as compared with cylindrical tubes is that the loading capacity thereof is smaller because of excess external or internal pressure.

The object of the present invention is to overcome the difficulties mentioned above.

The invention consists in a swirl tube, for example for heat exchangers, wherein the tube is reinforced by reinforcing bands spaced from the ends of the tube and consisting of swirl tube sections, of which the internal dimensions correspond to the external dimensions of the swirl tube.

The reinforcing bands can be disposed at intervals varying in accordance with the level of the pressure loading, and may be shrunk on to the swirl tube. This method of securing the reinforcing bands is sufficient for swirl tubes which are exposed to internal excess pressure but, in order to increase the

resistance of the swirl tube to external excess pressure, the reinforcing bands must be securely welded to the wall of the tube.

The present invention will now be more particularly described with reference to the accompanying drawing which illustrates a perspective view partly in section of a swirl tube constructed in accordance with the present invention.

Referring to the drawings, the swirl tube 1 is provided with a number of reinforcing bands 2 arranged at suitable intervals and consisting of swirl tube sections, of which the internal dimensions are the same as the external dimensions of the tube 1. The reinforcing bands may be shrunk on to the swirl tube, but, if it is necessary to reinforce the swirl tube against excess external pressure, they must be securely welded to the outer wall of the tube.

What we claim is:—

1. A swirl tube, for example for heat exchangers, wherein the tube is reinforced by reinforcing bands spaced from the ends of the tube and consisting of swirl tube sections, of which the internal dimensions correspond to the external dimensions of the swirl tube.

2. A swirl tube as claimed in Claim 1, wherein the reinforcing bands are shrunk on to the wall of the tube.

3. A swirl tube as claimed in Claim 1, wherein the reinforcing bands are welded to the wall of the tube.

4. A swirl tube, for example for heat exchangers, constructed, arranged and adapted to operate substantially as hereinbefore described with reference to the accompanying drawing.

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1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale.*

